

REMARKS/ARGUMENTS

Reconsideration and allowance of this application are respectfully requested.

Currently, claims 1-20 are pending in this application.

Allowable Subject Matter:

Claims 3-4, 9 and 15-16 are allowable.

Rejections Under 35 U.S.C. §102 and §103:

Claims 1-2, 5-8, 10, 13-14 and 17-20 were rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Crofts et al (U.S. '533, hereinafter "Crofts"). Claims 11-12 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over Crofts.

Applicant respectfully traverses these rejections.

For a reference to anticipate a claim, each element must be found, either expressly or under principles of inherency, in the reference. Each element of the claimed invention is not found in Crofts. For example, the limitation "determining drive signal generation timing and drive signal termination timing of the injector from the multisided geometry of the injection rate having an area corresponding to the request injection quantity," as required by independent claim 1 is not found in Crofts. Similarly, Crofts fails to disclose or even suggest "determining a drive signal generation timing and a drive signal termination timing of the injector from the multisided geometry of the injection rate having an area corresponding to the request injection quantity," as required by independent claim 13 and its dependents.

The claim limitation "multisided geometry of the injection rate" is supported by, for example, Figs. 1-2 of the application which illustrate a triangular and trapezoidal geometry.

Page 2 of the Office Action apparently alleges that lines 33-38 of paragraph [0036] and lines 13-18 of paragraph [0037] of Crofts disclose the above-noted limitation. Applicant disagrees with this allegation. Lines 33-38 of paragraph [0036] state the following (emphasis added):

Control device 67 may then process and utilize the nozzle valve element lift feedback signal in an appropriate manner to vary the timing of the injection control signal and/or the amount of voltage supplied to actuator 62 to thereby variably control the injection timing, fuel metering and/or injection rate shape.

While the above portion of Crofts discloses controlling injection rate shape, this portion of Crofts fails to disclose determining a drive signal generation timing and a drive signal termination timing from the multisided geometry of the injection rate. Crofts' teaching of controlling the injection rate shape fails to teach or suggest subsequently determining parameters, such as a drive signal generation timing (drive pulse ON timing) and a drive signal termination timing (drive pulse OFF timing), from the injection rate shape.

Lines 13-18 of paragraph [0037] disclose:

Control device 67 detects the opening or unseating, and the closing or seating, of control valve member 60 and provides a control valve member position feedback signal for enabling improved control over the movement of control valve member 60 and thus nozzle valve element 18.

This portion of Croft discloses control device 67 providing a feedback signal for controlling a nozzle valve element 18. Control over the nozzle valve element 18 fails to disclose determining a drive signal generation timing and a drive signal termination timing from the multisided geometry of the injection rate. As described in the last

sentence of paragraph [0037], control device 67 utilizes the control valve member feedback signals to control, among other things, the injection rate shape. However, controlling the injection rate shape does not teach or suggest an additional step of determining other parameters (e.g., drive signal generation and termination timings) from the injection rate shape. One end result of the operation of the control device 67 is to variably control the injection rate shape. In marked contrast, the injection rate shape, in particular its multisided geometry, is utilized as the basis to determine other parameters such as the drive signal generation and termination timings in the invention of independent claims 1 and 13.

Accordingly, Applicant respectfully requests that the rejections under 35 U.S.C. §102 and §103 be withdrawn.

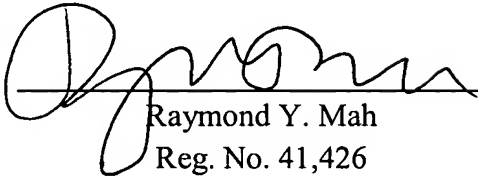
Conclusion:

Applicant believes that this entire application is in condition for allowance and respectfully requests a notice to this effect. If the Examiner has any questions or believes that an interview would further prosecution of this application, the Examiner is invited to telephone the undersigned.

ISHIZUKA et al.
Application No. 10/765,892
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Respectfully submitted,

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